REMARKS

The preceding amendment is respectfully submitted in response to the outstanding Office Action of August 18, 2003 on the above-identified application. Entry of the amendment and a reconsideration of the claims rejected by the Examiner in the action are respectfully requested.

Referring to the cover page (Form PTO-326) of the action, claims 1 through 17 are pending in the application. In the action, claims 1 through 4, 6 and 7 were indicated as being allowable. This has been noted with appreciation by the Applicants. Claims 5 and 8 through 17, however, were rejected.

Turning to page 2 of the action, the inventors' declaration is indicated in paragraph 1 as being defective for incorrectly identifying the international filing date of the application. A supplemental declaration identifying this application by serial number and filing date is being submitted herewith as required by the Examiner.

In paragraph 2, the Examiner noted that claims 9 and 10 are substantially duplicated by claims 12 and 13, respectively. Claims 12 and 13 have been canceled in the above amendment.

In paragraph 3, the drawings were objected to under 37 C.F.R. §1.84(p)(4) because the reference characters "5" and "6" are used to designate more than one element therein. A proposed drawing correction for Figures 2a, 2b, 2c and 3 is being submitted herewith as a separate paper for approval by the Examiner. Three paragraphs in the specification have been amended above to make the descriptions of the figures being corrected correspond to the drawings.

Referring to page 3 of the action, claim 5 was rejected under 35 U.S.C. §112, first paragraph as failing to comply with the enablement requirement. The Examiner has clearly explained her reason for rejecting this claim on these grounds, that, since electric fields are used to induce electroosmosis and electrophoretic migration, it is unclear how electroosmosis could be used to induce a flow rate opposite in direction to the electrophoretic migration in a capillary tube.

In the present application, several means are disclosed for providing bulk flow of fluid through the channels or capillaries of interest. The bulk flow in the capillary may be generated and controlled by either electroosmosis, pressure or various other mechanisms (see specification, page 8, lines 30 and 31). For example, the bulk flow may be created and controlled by electroosmotic pumping devices, pneumatic devices, or directly by electroosmosis with dynamic control and monitoring (see specification, page 8, line 31 to page 9, line 2). In any event, the sample component of interest is drawn toward the channel by bulk flow, but is excluded from the channel by the voltage field effects on a narrow range of materials with similar electrophoretic migration rates, thereby excluding or concentrating the sample component of interest at the immediate entrance of the capillary or channel (see specification, page 9, lines 3 through 6).

As is well known to those skilled in the art, the generation of a bulk flow of fluid through a capillary or channel by electroosmosis arises from an electrical interaction between the wall of the capillary or channel and the molecules of the fluid. The electrical interaction can arise between the materials from which the capillary or channel is made and the fluid itself, or may be induced by placing a voltage on the wall of the capillary or channel. An electric field directed longitudinally along the capillary or channel then causes the fluid to flow therein in one

direction or the other. The direction of this fluid flow is not necessarily the same as that of the electrophoretic migration of the sample component of interest. In accordance with the present invention, a fluid for which the direction of flow would be opposite is chosen.

That these techniques are well known to those skilled in the art is supported in the specification at page 10, lines 7 through 15. The teachings of the publications noted in this passage and elsewhere in the specification have been incorporated therein by reference (see specification, page 13, lines 22 and 23). Additional literature references supporting the Applicants' position that these techniques are well known in the art are as follows:

a) "Electroosmotic Flow Control of Fluids on a Capillary Electrophoresis Microdevice Using an Applied Radial Voltage" (N. A. Polson, M. A. Hayes, Anal. Chem. 2000, 72, 1088-1092);

b) "Extension of External Voltage Control of Electroosmosis to High pH Buffers" (M. A. Hayes, Anal. Chem. 1999, 71, 3793-3798);

c) "Effects of Buffer pH on Electroosmotic Flow Control by an Applied Radial Voltage for Capillary Zone Electrophoresis" (M. A. Hayes, I. Kheterpal, A.G.Ewing, Anal. Chem. 1993, 65, 27-31);

d) "Electroosmotic Flow Control and Monitoring with an Applied Radial Voltage for Capillary Zone Electrophoresis" (M. A. Hayes, A. G. Ewing, Anal. Chem. 1992, 64, 512-516); and

e) "Examination of Theoretical Models in External Voltage Control of Capillary Electrophoresis" (N. K. Hartley, M. A. Hayes, Anal. Chem. 2002, 74, 1249-1255).

Referring to page 4 of the action, claims 8 through 17 were rejected under 35 U.S.C. §102(b) as being anticipated by International Publication No. WO 96/04547. This

reference shows a microchip laboratory system and method which provide fluidic manipulation for a variety of applications, including sample injection for microchip chemical separations. It does not show or suggest the concentration of a sample component in a fluid sample through the application of electrophoresis operating in a direction opposite to that of the flow wherein the flow rate and the voltage are adjusted to bring the sample component to a standstill so that it may be concentrated near an electrode and subsequently removed.

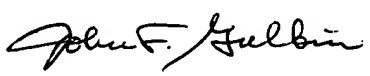
Independent claims 8 and 15 have been amended to more particularly point out this invention and to overcome the cited WO 96/04547. Support for the amendments may be found in the specification in the passage starting on page 7, line 28 and continuing to page 8, line 20. Entry of the amendments to claims 8 and 15 is respectfully requested.

Claims 16 and 17 have been amended for the sake of clarity as claim 15, from which these claims depend, has no antecedent basis for "constrained fluid pathway."

Claim 8 is respectfully submitted to be patentable over the cited WO 96/04547. claims 9, 10, 11 and 14, which depend therefrom, are submitted to be patentable as further limiting the subject matter claimed in claim 8. Likewise, claim 15 is submitted to be patentable over the cited WO 96/04547, and claims 16 and 17 are submitted to be patentable as further limiting the subject matter claimed therein.

An early allowance of claims 5, 8 through 11 and 14 through 17, along with that of claims 1 through 4, 6 and 7, is respectfully requested and earnestly sought.

Respectfully submitted,



John F. Gulbin
Registration No. 33,180

212-297-5800

Pitney, Hardin, Kipp & Szuch LLP
685 Third Avenue
New York, New York 10017-4024